

# NOTES ON CULICIDAE IN VENEZUELA, WITH DESCRIPTIONS OF NEW SPECIES

## PART II

BY

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## PLATE XI

Since the completion of a previous paper (1921) we have received, through the kindness of Dr. Chacin and Dr. M. Núñez Tovar, a number of consignments of mosquitoes collected, during the Autumn of 1921, from the regions surrounding Caracas and Maracay.

Most of the species represented are common, and of wide distribution, but among them are a new species of the *Arribalzagia* group of *Anopheles* and a very distinctive new species of the *Janthinosoma* group of *Psorophora*.

*Anopheles albimanus*, Wied.

La Cabrero, Estado Carabobo, ♀ 1; Tapatapa, near Maracay, ♂ 1, ♀♀ 3; La Barraca, Maracay, ♀♀ 3. Dr. M. Núñez Tovar.

*A. albimanus* var. *tarsimaculata*, Goeldi.

San Francisco, near Maracay, ♀♀ 3; La Cabrero, Estado Carabobo, ♀♀ 4; La Barraca, near Maracay, ♀ 1; near Maracay, ♂♂ 2, ♀ 1. Dr. M. N. Tovar.

A number of specimens occurred in which the condition of the palpi was intermediate between the type *A. albimanus* and the variety *tarsimaculata*. Some specimens have the palpi with the penultimate joint with basal white ring; beyond, black scaled with a number of white scales scattered among the black ones about half-way between base and apex of segment. In other cases the penultimate joint with basal white ring and most of scales on outer side of a much paler brown than the rest of the dark palpal scales.

*A. argyrotarsis*, R.D.

San Francisco, near Maracay, ♀ 1. Dr. M. N. Tovar.

*A. pseudopunctipennis*, Theo.

San Francisco, near Maracay, ♂♂ 3, ♀♀ 2; La Cabrero, Estado Carabobo, ♀ 1; Tapatapa, near Maracay, ♂ 1, ♀♀ 3; La Barraca, near Maracay, ♀♀ 2. Dr. M. N. Tovar.

*A. maculipes*, Theo.

San Francisco, near Maracay, ♀ 1. Dr. M. N. Tovar.

*Anopheles (Arribalzagia) venezuelae*, sp.n. (Plate XI).

## FEMALE.

*Proboscis* slightly more than 3 mm. Curved ventrally in distal half; labellae conical, dark ochraceous distally, shading to brown at base with a few fine dark hairs; vestiture of dark coppery brown scales roughened basally beneath. *Palpi* shorter than proboscis, clothed with black, spatulate scales sub-erect on basal third, yellow scales forming very narrow rings at apex, at base of last segment, and at middle of long segment; also a few scattered pale scales on distal half. Apex with a tuft of pale yellow hairs. Antennae with long segments densely clothed with fine decumbent hairs, setae of whorls sparse, pale. Third segment with a large patch of flat decumbent scales on upper and inner side on distal half, white proximally, ochraceous golden distally. Tori moderate, dark brown with white scales externally. *Clypeus* large, surface minutely punctate, olive brown proximally, ochraceous pollinose distally. Eyes deep black. Occiput with median groove; integument brown, light grey at margins of eyes and medially. Vestiture of dense upright forked scales, ochraceous in front, with a few whitish ones in middle, dark ones behind; posteriorly and laterally scales very dense, black. Space between eyes with pale narrow scales at borders, and many long creamy forwardly-projecting hairs. A few brown setae projecting forwards from posterior margins of eyes.

*Prothoracic lobes* with erect black scales and a few brownish hairs above; whitish scales below. *Mesonotum* greyish pruinose mottled with brown spots; three large black ocellar spots: two lateral and one posterior involving the scutellum. Vestiture of straw-coloured hairs, many of them arising from pigmented spots. Median area bordered by two

narrow longitudinal yellowish depressed bare stripes, and two wider bare depressions extending from the lateral ocellar spots to the posterior border of the mesonotum. At anterior border a group of strongly curled, pale yellow hairs. *Scutellum* greyish pruinose at sides, along posterior border a median and two lateral groups of yellow hairs and a continuous row of long dark setae. *Postnotum* nude, dark tawny ochraceous at sides with broad brown median stripe. *Pleurae* pale greyish pruinose with five large spots unicolorous with ocellar spots on thorax, dark brown basally. A few flat, white scales medially.

*Abdomen* dorsum uniform mouse grey, vestiture of fine yellow hairs. Distal margins of segments two to seven with a few black scales, and lateral projecting tufts of black spatulate scales with a few white ones near them. Eighth segment with pre-apical band of flat ochraceous scales, and border of flat black scales, and pale yellow hairs. Last segment black scaled. Venter greyish pruinose, with long yellowish hairs at sides of segments, and shorter dark hairs medially. Segments two to seven with broad, white semi-decumbent scales thinly scattered over surface; apical third with dense patches of sub-erect black scales. Venter of eighth segment with golden-yellow, appressed scales. Terminal segment black scaled.

*Wings*. First fork cell one and a half times as long as its petiole; second fork cell about as long as its petiole. *Basal cross vein very narrowly separated from anterior cross vein*. Three large black scaled patches bordered with white scales, with membrane beneath deeply infuscated, the largest median involving the costa, sub-costa and first and second veins; the smallest basal, involving the costa, sub-costa and first vein; the distal one involving the costa, first vein, and both branches of the second vein. Pale scales of wings mostly light yellow except white spots bordering large black patches. Costa mostly black scaled with ten small pale spots, four proximal to large median black patch; scales at apex of costa grey. Sub-costa mostly black scaled with small pale spots opposite those on costa, some decumbent pale scales on basal quarter, largely pale scaled beyond median black patch, apex pale. First vein, in addition to the three large black patches, with black decumbent scales on proximal eighth, between proximal and distal black patch, outstanding scales mostly pale, decumbent scales black; between median and distal black patches, vein mostly pale scaled, with one small black spot and a few scattered black scales. Beyond distal dark patch two grey spots;

apex of vein pale. Second vein: stem beyond median black patch mostly pale scaled, upper branch of fork black scaled on proximal half, beyond with pale scales and a few grey ones; apex grey. Lower branch of fork with a large proximal and apical dark patch, and two smaller dark spots separated by a pale patch. Third vein dorsally mostly pale scaled, with four black spots, two near the base, one apical, and one sub-apical; one or two black decumbent scales on central, pale area. *Third vein from below appearing dark scaled.* Fourth vein mostly black scaled, stem with many pale decumbent scales between the black ones. Proximally, rest of stem with seven pale spots, one at base of fork; branches of fork each with three pale spots; on upper branch the middle white spot elongate. Fifth vein mostly pale scaled, stem with three black spots at base, and many decumbent black scales on distal half. Upper branch of fork with four small and one large black spot, apex black; lower branch with two black spots distally, apex pale, both branches with a few black scales scattered among the pale ones. Sixth vein with seven black spots; apex black. Fringe with twelve pale spots, largest at apex of lower branch of fifth vein. Outstanding scales varying greatly in size and shape; on distal portions of veins lanceolate to narrowly ovate; on basal portions ovate with many very broadly ovate ones on fourth vein and sub-costa, some of those on sub-costa obliquely truncate. (Plate XI, fig. 1).

*Halteres* above densely white scaled with sub-circular dark median area; beneath densely black scaled, stem nude, ochraceous.

*Legs.* Very long and slender. Vestiture black with many white spots and bands. Femora and tibiae densely mottled with white spots. Hind tarsi with ten white rings or spots on first joint, seven on second, four on third; fourth and fifth white ringed at base and apex and in middle (Plate XI, fig. 2). Front tarsi with eleven white rings or spots on first joint, five on second, four on third and two on fourth and fifth. Third tarsi with ten white spots on first joint, five on second, four on third, three on fourth; fifth white with two narrow black rings.

*Length* 6.5 mm. *Wing* 5.5 mm.

One ♀ taken at La Cabrera, Estado Carabobo, Autumn, 1921, by Dr. M. Nunez Tovar.

This large and beautiful species approaches closely in the markings of the wing to *Anopheles (Arribalzagia) punctimacula*, Dyar and Knab, as described by Howard, Dyar and Knab (1917), under the name *A. malefactor*. The chief differences are tabulated below.

				<i>A. punctimacula</i> , D. and K.	<i>A. venezuelae</i> , sp.n.
Length	...	...	...	About 5.0 mm. ...	6.5 mm.
Wing	...	...	...	About 4.5 mm. ...	5.5 mm.
Vein III	...	...	...	'Two small spots at and near base and two others at and near apex, a few black scales scattered along its whole length.'	Base pale, two small black spots near base, two others at and near apex, only one group of two small black scales on rest of upper surface of vein.
Distance between anterior and basal cross veins				About equal to length of basal cross vein	Less than a quarter of the length of the basal cross vein
Hind tarsal segments 3	...	...	...	1 apical, 1 basal, and 1 median, white ring	2 white rings between white apical and basal rings
Hind tarsal segments 4	...	...	...	As third segment	With 1 apical, 1 basal, and 1 median ring
Hind tarsal segments 5	...	...	...	Entirely white (or with a black band)*	With two black bands

\* Dyar, 1918

*Limatus durhamii*, Theo.

La Barraca, near Maracay, ♀ 1.

*Culex quinquefasciatus*, Say.

Houses and buildings in and around Caracas, ♂♂ 275, ♀♀ 738.

Dr. Chacin. About 100 ♂♂ were determined by the genitalia.

Near Maracay, ♂♂ 8, ♀♀ 4. Dr. M. N. Tovar.

*Culex declarator*, D. and K.

Near Maracay, ♂ 1, ♀ 1. Dr. M. N. Tovar.

*Culex corniger*, Theo.

Caracas, ♂ 1, ♀ 1. Dr. Chacin.

*Aedomyia squamipennis*, Theo.

Near Maracay, ♀♀ 2. Dr. M. N. Tovar.

*Mansonia titillans*, Walker.

Near Maracay, ♀♀ 2. Dr. M. N. Tovar.

*Psorophora posticus posticus*, (Wied.) Dyar.

Near Maracay, ♂♂ 2, ♀♀ 5. Dr. M. N. Tovar.

*Psorophora posticatus sayi*, D. and K.

Near Maracay, ♀ 1. Dr. M. N. Tovar.

*Psorophora lutzii*, Theo.

Near Maracay, ♀♀ 2. Dr. M. N. Tovar.

*Psorophora saeva*, D. and K.

Near Maracay, ♀♀ 2. Dr. M. N. Tovar.

The specimens differed from the description of *P. saeva* in the monograph of Howard, Dyar and Knab (1917), in having the scales of the proboscis sub-erect.

*Psorophora ciliata* (Fab.) R.D.

Near Maracay, ♀♀ 2. Dr. M. N. Tovar.

*Psorophora (Janthinosoma) tovari*, sp.n.

#### FEMALE.

*Proboscis* uniform; labellae small, conical; vestiture of dark scales with violet reflections. Palpi about one-fifth of the length of the proboscis, curved, with partially erected black scales with violet reflections, and a few rather long, coarse setae. Antennae: long segments very dark brown, with delicate white decumbent hairs, setae of whorls blackish brown. Tori ochraceous externally, dark brown internally, dark area with a row of pale flat scales and a number of dark setae. *Clypeus* large, very shining black above, ochraceous at sides above, the colours separated in a distinct line at sides below shading to dark brown. *Eyes* large. *Occiput* wide; integument dark shining blackish-brown above, tawny below. Vestiture of broad very much curved (much more strongly curved than the pale scales on the mesonotum of *P. posticatus*, Wied.) creamy white scales scattered over entire surface, intermixed with creamy upright forked scales on median third, and with broad curved yellowish scales and dark brown setae on lateral thirds; coarse dark setae anteriorly, and a tuft of ochraceous setae projecting between eyes. Posteriorly, upright forked scales black.

*Prothoracic lobes* with silvery, much curved scales, and numerous very coarse, black setae. *Mesonotum*: integument very dark brown, dull. Vestiture on centre of disc of narrow curved, brown scales with brassy reflections, these scales extending laterally behind almost to wing roots.

Sides of disc with broad much curved, creamy scales resembling those on occiput intermixed with a smaller number of bronzy, broad, curved scales. A median band, narrowed behind, of broad, much curved, creamy scales, on anterior sixth. Posteriorly mesonotum partially denuded, antescutellar space dotted with spindle-shaped ochraceous and creamy white scales intermixed. *Pleurae*: integument dark, shining, sepia; above with creamy scales as on sides of mesonotum; below with numerous broad, flat white scales. *Scutellum* with broad, flat, creamy and yellowish white scales. *Postnotum* nude, dark brown, shining.

*Abdomen*. First segment with a median broad patch of creamy white, flat scales, scattered pale ones at sides and numerous fine pale hairs; laterally a conspicuous patch of creamy scales not visible from above. Segments two to six with dark bronzy scales with brilliant metallic blue reflections, and conspicuous apical bands of creamy yellow scales, continuous at sides with pale scales of venter. Segments two and three with creamy band narrowed at sides, and produced backwards medially forming a wide triangle with apex approaching within a third of the base of the segment. On segment four, median backward extension of band broader, truncated. Segments five and six with band broadest in middle, gradually narrowed at sides. Segment seven mostly pale scaled above.

*Venter* entirely clothed with pale golden and silvery scales, but proximal half of second segment denuded.

*Wings*: Membrane deeply infuscated. First fork cell one and a half times the length of its petiole; second fork cell slightly longer than its petiole. Basal cross vein separated from anterior cross vein by nearly its own length. Outstanding scales sepia, ligulate. *Halteres*: knobs brown, stems ochraceous. Metatarsi of hind legs with no sub-erect scales. Front and mid-femora pale straw coloured with dorsal broad stripe and apical narrow ring of bronzy scales with metallic violet reflections. Hind femur with bronzy metallic scales. Tibiae and tarsi clothed with dark bronzy metallic scales, a stripe of scales with ochraceous reflections on under sides of front and middle tibiae, lines of scales with brassy reflections on under sides of the metatarsi and tarsi. Hind legs with segments three, four and five of tarsi missing.

Claws of first and second tarsi with teeth:—I·I—I·I.

Length *c.* 5 mm. Wing *c.* 4 mm.

Two ♀♀ taken in region of Maracay, Venezuela. Dr. M. Núñez Tovar, 1921.



*Aedes argenteus*, Poirét.

Houses and buildings in and around Caracas, ♂♂ 28, ♀♀ 327.  
Dr. Chacin. Near Maracay, ♂♂ 18, ♀♀ 6. Dr. M. N. Tovar.

*Aedes trivittatus* (Coq.), D. and K.

Near Maracay, ♀ 1. Dr. M. N. Tovar.

*Aedes (Finlaya) oswaldi*, Lutz.

Near Maracay, ♀ 1. Dr. M. N. Tovar.

## REFERENCES

- DYAR (1918). *Ins. Ins. Mens.* Vol. VI, p. 147.  
EVANS (1921). *Ann. Trop. Med. & Parasit.*, Vol. XV, p. 445.  
HOWARD, DYAR, and KNAB (1917). *The Mosquitoes of North and Central America and the West Indies* Vol. III.

While the present paper was in the press an extensive collection of *Arribalzagia* sp. from the Panama Canal Zone has been obtained. A preliminary examination of these specimens leads me to consider that the characters on which Dyar (1918) defines the species of *Arribalzagia* in his tables may be extremely variable. It seems probable that, although the type of *A. venezuelae* does not fall under any of the species in this table, and does not agree in detail with any of the descriptions of the existing species, it is in reality a variety of *A. punctimacula*, D. and K. A detailed examination of the material is being made, and a further note on the subject will be published shortly.



EXPLANATION OF PLATE XI

*Anopheles (Arribalzagia) venezuelae*, sp.n.

Fig. 1. Wing.

Fig. 2. Last three segments of hind tarsus.

Both figures drawn with camera lucida.



FIG. 1

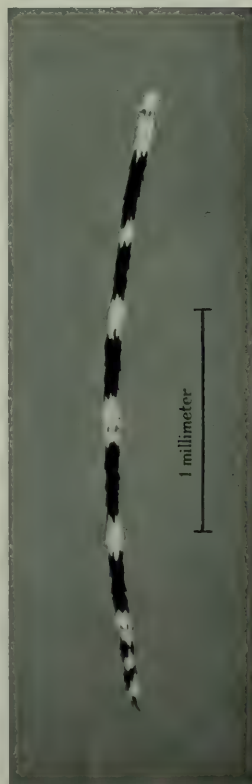


FIG. 2